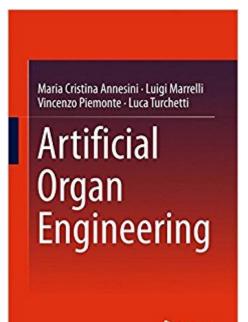


The book was found

Artificial Organ Engineering



2 Springer



Synopsis

Artificial organs may be considered as small-scale process plants, in which heat, mass and momentum transfer operations and, possibly, chemical transformations are carried out. This book proposes a novel analysis of artificial organs based on the typical bottom-up approach used in process engineering. Starting from a description of the fundamental physico-chemical phenomena involved in the process, the whole system is rebuilt as an interconnected ensemble of elemental unit operations.Each artificial organ is presented with a short introduction provided by expert clinicians. Devices commonly used in clinical practice are reviewed and their performance is assessed and compared by using a mathematical model based approach. Whilst mathematical modelling is a fundamental tool for quantitative descriptions of clinical devices, models are kept simple to remain focused on the essential features of each process.Postgraduate students and researchers in the field of chemical and biomedical engineering will find that this book provides a novel and useful tool for the analysis of existing devices and, possibly, the design of new ones. This approach will also be useful for medical researchers who want to get a deeper insight into the basic working principles of artificial organs.

Book Information

Hardcover: 265 pages Publisher: Springer; 1st ed. 2017 edition (July 20, 2016) Language: English ISBN-10: 1447164423 ISBN-13: 978-1447164425 Product Dimensions: 6.1 x 0.7 x 9.2 inches Shipping Weight: 1.2 pounds (View shipping rates and policies) Average Customer Review: Be the first to review this item Best Sellers Rank: #853,394 in Books (See Top 100 in Books) #188 in Books > Science & Math > Biological Sciences > Biophysics #229 in Books > Textbooks > Medicine & Health Sciences > Medicine > Basic Sciences > Biochemistry #303 in Books > Engineering & Transportation > Engineering > Bioengineering > Biomedical Engineering

Customer Reviews

Artificial organs may be considered as small-scale process plants, in which heat, mass and momentum transfer operations and, possibly, chemical transformations are carried out. This book proposes a novel analysis of artificial organs based on the typical bottom-up approach used in process engineering. Starting from a description of the fundamental physico-chemical phenomena involved in the process, the whole system is rebuilt as an interconnected ensemble of elemental unit operations. Each artificial organ is presented with a short introduction provided by expert clinicians. Devices commonly used in clinical practice are reviewed and their performance is assessed and compared by using a mathematical model based approach. Whilst mathematical modelling is a fundamental tool for quantitative descriptions of clinical devices, models are kept simple to remain focused on the essential features of each process.Postgraduate students and researchers in the field of chemical and biomedical engineering will find that this book provides a novel and useful tool for the analysis of existing devices and, possibly, the design of new ones. This approach will also be useful for medical researchers who want to get a deeper insight into the basic working principles of artificial organs.

Maria Cristina Annesini is a full professor of Chemical Engineering Fundamentals at the Department of Chemical Engineering Materials & Environment of the University â œLa Sapienzaâ • of Rome and holds the chairs of a corransport Phenomenaa • and a correction control Reactor Engineeringa •. She has a thirty-years' experience in academic teaching and research and has published about 100 papers, many of them related to biotechnology and biomedical processes. Luigi Marrelli has been full professor of Chemical Engineering Fundamentals. Until September 2009 he held the chairs of â œChemical Reactorsâ • at the Department of Chemical Engineering Materials & Environment of University of Rome â œLa Sapienzaâ • and of â œArtificial Organ Engineeringâ • and ⠜Molecular Thermodynamics of Biological Systemsâ • at the Engineering Faculty of the University â œCampus Biomedicoâ • of Rome, where he was Dean from 2009 to 2013. Presently, he is professor of a chemical Reactorsa • and of a chermodynamicsa •. He has a forty-years' experience in academic research and has published about 100 publications, many of them referring to biotechnology and biomedical processes. Vincenzo Piemonte is associate professor at the University â œCampus Bio-medicoâ • of Rome (chairs on Artificial Organs Engineering, Refinery and Biorefinery Processes) and an Adjunct Professor at the Department of Chemical Engineering of the University â œLa Sapienzaâ • of Rome (Chair on Artificial Organs Engineering). His research activity is primarily focused on the study of Transport phenomena in artificial and bioartificial organs. He has about 100 publications on chemical thermodynamics, kinetics, biomedical devices modeling and Bioreactors.Luca Turchetti is research scientist at the Italian National agency for New Technologies, Energy and Sustainable Economic Development (ENEA). He previously held research and teaching positions at the Universities â œLa Sapienzaâ • and "Campus Bio-medico" of Rome. His research activity is primarily focused on the study of adsorption processes and transport phenomena in chemical reactors, biologic tissues and liver support devices. He authored and co-authored about 30 publications including chapters in books, conference papers and articles on international journals.

Download to continue reading...

Artificial Organ Engineering Readings in Medical Artificial Intelligence. The First Decade (Addison-Wesley Series in Artificial Intelligence) Commodified Bodies: Organ Transplantation and the Organ Trade (Routledge Studies in Science, Technology and Society) A Treasury of Organ Music for Manuals Only: 46 Works by Bach, Mozart, Franck, Saint-Saëns and Others (Dover Music for Organ) Organ Music for Manuals Only: 33 Works by Berlioz, Bizet, Franck, Saint-Saens and Others (Dover Music for Organ) Organ Works (Dover Music for Organ) Two Masses for Organ (Dover Music for Organ) ORGAN ALBUM BOOK1 ORGAN Easy Organ Christmas Album: Seasonal Classics for Use in Church and Recital by Bach, Brahms, Franck, Pachelbel and Others (Dover Music for Organ) Playing the Organ Works of Cesar Franck (The Complete Organ No. 1) Organ Classics: 18 Works by Bach, Franck, Mendelssohn, Reger and Others (Dover Music for Organ) Playing the Organ Works of Cesar Franck (Complete Organ, No 1) Toward an Authentic Interpretation of the Organ Works of Cesar Franck (The Complete Organ, 6) Great Organ Transcriptions: 26 Works by Liszt, Saint-Saens, Bach and Others (Dover Music for Organ) Saint-Saens and the Organ (Complete Organ) Saint-Saens and the Organ (The Complete Organ) No.7) A Vaughan Williams Organ Album (Oxford Music for Organ) Tissue Engineering: From Cell Biology to Artificial Organs Artificial Organs (Synthesis Lectures on Biomedical Engineering) Gravity Sanitary Sewer Design and Construction (ASCE Manuals and Reports on Engineering Practice No. 60) (Asce Manuals and Reports on Engineering ... Manual and Reports on Engineering Practice)

Contact Us

DMCA

Privacy

FAQ & Help